

Stereovision quality

results of three

different

tests for

school-

children

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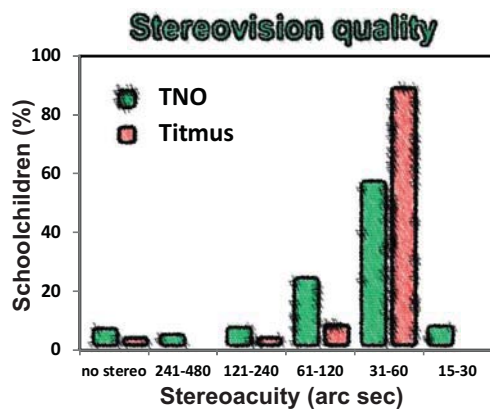
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Purpose of the study

was to find positive and negative features of three different stereovision tests to improve the evaluation of stereopsis by using vision screening test for schoolchildren made on the computer screen, smart-phone or tablet.

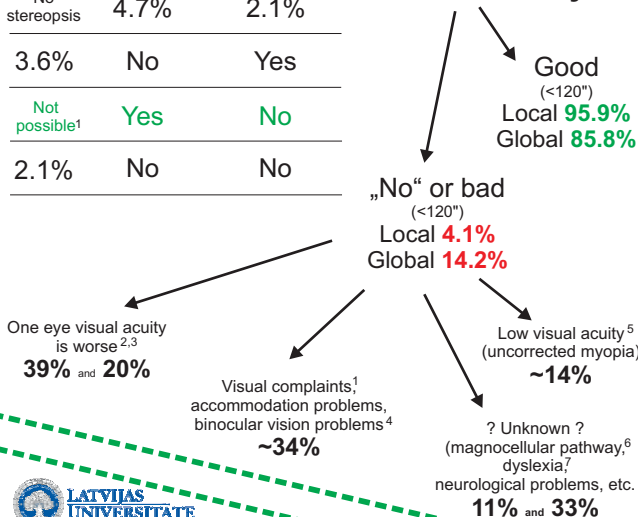
Results

	Method type (global stereopsis)	
	Test on paper TNO	Test on computer Thomson
No stereopsis	4.7%	4.5%
1.7%	No	Yes
2.0%	Yes	No
1.9%	No	No



Type of stereovision	Global TNO test	Local Titmus test
	No stereopsis	4.7%
3.6%	No	Yes
Not possible ¹	Yes	No
2.1%	No	No

Stereoacuity



Method

Optometrists and students worked with local schools to screen the vision of schoolchildren (7 to 19 years of age). We evaluated:

- *) visual acuity at far and near;
- *) binocular vision, phoria;
- *) **stereopsis**;
- *) accommodation of the eye;
- *) vergence facility;
- *) colour vision.

In pilot study we tested 4278 children, more concentrated on visual functions at near. Only 14% children had decreased visual acuity at far, but up to 32% children had the changes of near visual functions. We evaluated the quality of stereovision using three different tests - for local and global stereopsis.



Titmus test made on paper (Local stereopsis)
TNO test made on paper (Global stereopsis)
Thomson test made on computer (Global stereopsis)

Conclusion

In vision screening we are going to evaluate the quality of stereovision using global-type stereotest for parvocellular visual pathway also local-type stereotests for magnocellular pathway.

It is necessary to start the evaluation of global stereopsis with easy training or with large disparities (~600-800 arc sec).

We suggest for evaluation of stereovision quality to include stereostimuli for fine stereopsis (40-90 arc sec) and coarse stereopsis (200-400 arc sec).

If stereoquality is decreased (>120 arc sec) or absent then it could indicate visual problems with accommodation, phoria, convergence, decreased visual acuity in one or both eyes or neurological problems.

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